

THE PREVALENCE OF *ECHINOCOCCUS GRANULOSUS* AND OTHER TAENIID CESTODES IN SHEEP DOGS OF CENTRAL UTAH¹

Lauritz A. Jensen², Ferron L. Andersen², and Peter M. Schantz¹

ABSTRACT.— Fifty-one of 62 sheep dogs in central Utah were successfully purged for diagnosis of cestodes in 1981. Tapeworms were identified in the purged fecal samples of 33 (64.7 percent) animals. Minimum infection rates in the dogs which were purged were: 9.8 percent for *Echinococcus granulosus*, 29.4 percent for *Taenia pisiformis*, 27.5 percent for *T. ovis krabbei*, 27.5 percent for *T. hydatigena*, and 2.0 percent for *T. serialis*. The prevalence of *E. granulosus* decreased from 27 percent in 1971 to 9.8 percent in 1981.

Echinococcus granulosus is endemic in dogs in central Utah and is primarily confined to sheep-raising communities (Andersen et al. 1973). The proportion of infected dogs among those brought to voluntary diagnostic clinics has gradually decreased from 27 percent in 1971 (Loveless et al. 1978) to 18 percent in 1978 (Condie et al. 1981). In the past, surveys have included all classifications of domestic dogs (e.g., family pet, guard dog, sheep dog, hunting dog, etc.), regardless of the feeding habits. To help determine the effectiveness of the hydatid disease control program in Utah, and to ascertain if the prevalence of *E. granulosus* is in a continued decline, 62 sheep dogs were tested in Sanpete and Summit counties during August and October 1981.

Field clinics were conducted in the general vicinity of summer range allotments so as to be convenient for sheep herders. Owners were requested to fast their dogs 12 hours prior to the examination. A solution of 1.5 percent arecoline hydrobromide was administered orally (3 mg/kg of body weight) to induce purging, after which the mucoid portion of the purge was diluted in water and examined for tapeworms. Specimens of *E. granulosus* were washed in tap water for 30 minutes and fixed in AFA, whereas the larger taeniids were relaxed in water for 6 hours at ambient temperature and fixed in formalin. Table 1 details the results of the survey.

Fifty-one of 62 dogs, which ranged in age from six months to nine years, were successfully purged. Tapeworms were recovered from the purged fecal specimens of 33 dogs. Infections with *E. granulosus* were identified in 5 of 51 (9.8 percent) dogs, representing four separate sheep herds. Two of the four owners of these herds previously had had hydatid cysts removed from their liver or lung, and had participated in past field clinics. The rates of infection in the 51 dogs were: 29.4 percent for *Taenia pisiformis*, 27.5 percent for *T. ovis krabbei*, 27.5 percent for *T. hydatigena*, and 2.0 percent for *T. serialis*. The total burden of *Taenia* in infected dogs ranged from one to 233, with mixed infections of two or more species of worms being common. There was no obvious relationship between the age of the parasitized dogs and the proportion of dogs infected, and it was not uncommon for pups, approx-

TABLE 1. Cestodes recovered from 51 sheep dogs of central Utah.

Cestode	No. dogs infected		Total % dogs infected
	Sanpete Co. (n = 38)	Summit Co. (n = 13)	
<i>Echinococcus granulosus</i>	5	0	9.8
<i>Taenia hydatigena</i>	5	9	27.5
<i>Taenia ovis krabbei</i>	12	2	27.5
<i>Taenia pisiformis</i>	12	3	29.4
<i>Taenia serialis</i>	1	0	2.0

¹Supported in part by NIH Grant AI-10588-10

²Department of Zoology, Brigham Young University, Provo, Utah 84602.

³Parasitic Diseases and Veterinary Public Health Division, Center for Disease Control, Atlanta, Georgia 30333.

imately six months old, to harbor gravid taeniids. Dogs infected with *E. granulosus* were injected with praziquantel (Droncit, Bayvet Division, Cutter Laboratories, Shawnee, Kansas) at a dosage level of 5 mg/kg of body weight.

Comparison of the 9.8 percent rate of infection of *E. granulosus* in 1981 to 27 percent in 1971 (Loveless et al. 1978) and 18 percent in 1978 (Condie et al. 1981) suggests a true reduction. This suggestion is further supported by the fact that only dogs at highest risk, i.e., sheep dogs, were examined in the study herein reported. It is also apparent from the taeniids recovered that sheep herders still feed their dogs ample supplies of sheep viscera, deer, and rabbits. Even though most owners of large sheep herds appear to cooperate and do not give their dogs sheep viscera or wild animals, the transient, hired

herders may be less disciplined. Thus, yearly field clinics and educational programs on diseases caused by cestodes should be continued.

Representative specimens: *E. granulosus* USNM Helm. Coll. No. 76786; *T. pisiformis* No. 76787; *T. ovis krabbei* No. 76788; *T. hydatigena* No. 76789; *T. serialis* No. 76790.

LITERATURE CITED

- ANDERSEN, F. L., P. D. WRIGHT, AND C. MORTENSON. 1973. Prevalence of *Echinococcus granulosus* infection in dogs and sheep in central Utah. J. Amer. Vet. Med. Assoc. 163:1168-1171.
- CONDIE, S. J., J. R. CRELLIN, F. L. ANDERSEN, AND P. M. SCHANTZ. 1981. Participation in a community program to prevent hydatid disease. Publ. Hlth. Lond. 95:28-35.
- LOVELESS, R. M., F. L. ANDERSEN, M. J. RAMSAY, AND R. K. HEDELIUS. 1978. *Echinococcus granulosus* in dogs and sheep in central Utah, 1971-1976. Amer. J. Vet. Res. 39:499-502.